Rapid Assessment Reference Condition Model

The Rapid Assessment is a component of the LANDFIRE project. Reference condition models for the Rapid Assessment were created through a series of expert workshops and a peer-review process in 2004-2005. For more information, please visit www.landfire.gov. Please direct questions to helpdesk@landfire.gov.

Potential Natural Vegetation Group (PNVG):

R4OKHK **Oak Woodland**

General Information

Contributors *(additional contributors may be listed under "Model Evolution and Comments")*

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Vegetation Type

Woodland

Dominant Species*

QUAL	TIAM
QURU	CAOV
QUMA	OSVI
ACSA	QUMU

General Model Sources

- [ ] Literature
- [ ] Local Data
- [x] Expert Estimate

LANDFIRE Mapping Zones

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Rapid Assessment Model Zones

- [ ] California
- [ ] Great Basin
- [ ] Great Lakes
- [ ] Northeast
- [x] Northern Plains
- [ ] N-Cent.Rockies
- [ ] Pacific Northwest
- [ ] South Central
- [ ] Southeast
- [ ] S. Appalachians
- [ ] Southwest

Geographic Range

Occurring primarily in Iowa, northern Missouri, eastern Nebraska.

Biophysical Site Description

Found in wooded valleys extending into the extensive landscape of tallgrass prairie on the uplands. Topographically, distributed on dry and dry-mesic slopes between flat uplands and bottomlands; also on dry sites on flat uplands adjacent to edges of valleys. Generally, from east to west, the distribution becomes more and more limited in extent and more dependent on favorable habitat conditions. Open conditions describe a single canopy structure with no developed midstory. Closed conditions are multiple canopy usually late-seral forests.

Vegetation Description

White oak, red oak, bur oak, basswood, sugar maple (east), and black maple (west) are the main tree species; bur oak, hickory, white ash, and American and red elms are frequent associates. Ironwood and roughleaf dogwood are important under and mid story components. Toward the western edge of the type, the following tree species drop out of the model due to geographic range: sugar maple, black maple, white, oak, red oak. At the far western edge, only bur oak and basswood remain as major canopy trees.

Disturbance Description

Fire Regime Group I. Frequent surface fires (5-yr fire return interval) in the understory under woodland density of canopy trees. Interruptions to frequent fire are necessary to allow tree regeneration to replace aging canopy trees. A 15-yr pause in burning is modeled as opportunity for regenerating trees to grow into fire-resistant size class before surface fire resumes.

*Dominant and Indicator Species are from the NRCS PLANTS database. To check a species code, please visit http://plants.usda.gov.

Adjacency or Identification Concerns

Adjoins oak savanna (R4OASA) toward prairie side of woodland. Adjoins maple-basswood forest communities on rarely burned mesic sites. Model focuses on portion of landscape that could support oak woodland.

Scale Description

Sources of Scale Data ☐ Literature ☐ Local Data ☑ Expert Estimate

This PNVG was found in fairly protected areas with minimum patch sizes 100-1000 and maximum 10,000 acres.

Issues/Problems

Class A (open regenerating state) modeled out to be 16% of outcome, but presettlement condition was likely much less (1%).

Model Evolution and Comments

Ortmann suggested that grazing/browsing could have been an important influence in establishment of canopy trees in gaps and in recruitment/establishment of understory species.

Succession Classes

Succession classes are the equivalent of "Vegetation Fuel Classes" as defined in the Interagency FRCC Guidebook (www.frcc.gov).

Class A 16%

Early1 All Structures

Description

0-15years. Sprouts, seedlings, saplings of major overstory species in gaps and openings created by wind, insect/disease and fire. Shrubs abundant as well. Both fire-tolerant and intolerant species present. Trees grow into fire-resistant sizes by end of this class.

Indicator Species* and Canopy Position

QUAL	Upper
QURU	Upper
TIAM	Upper
ACSA	Upper

Upper Layer Lifeform

☐ Herbaceous
☐ Shrub
☑ Tree

Fuel Model 1

Structure Data (for upper layer lifeform)

	Min	Max
Cover	0%	100%
Height	Herb Short <0.5m	Tree Regen <5m
Tree Size Class	Sapling >4.5ft; <5"DBH	

☐ Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:

Class B 67%

Late1 Open

Description

16-400 years. Single canopy structure without woody understory. Herbaceous layer dense. White oak and red oak are dominant species due to fire exclusion of maple and basswood. After 150 years, red oak dies of old age, leaving white oak as main dominant.

Indicator Species* and Canopy Position

QUAL	Upper
QURU	Upper

Upper Layer Lifeform

☐ Herbaceous
☐ Shrub
☑ Tree

Fuel Model 1

Structure Data (for upper layer lifeform)

	Min	Max
Cover	25%	60%
Height	Tree Short 5-9m	Tree Medium 10-24m
Tree Size Class	Large 21-33"DBH	

☐ Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:

Class C 17%

Late1 Closed

Description

16-400 years. Mature canopy. White oak is dominant overstory species variable due to death of red oak and fire exclusion of maple and basswood.

Indicator Species* and Canopy Position

ACSA	Upper
TIAM	Upper
QURU	Upper
QUAL	Upper

Upper Layer Lifeform

- ☐ Herbaceous
- ☐ Shrub
- ☑ Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	Max
Cover	60 %	100 %
Height	Tree Short 5-9m	Tree Medium 10-24m
Tree Size Class	Large 21-33"DBH	

☐ Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:

Class D 0%

Mid1 Closed

Description

Indicator Species* and Canopy Position

Upper Layer Lifeform

- ☐ Herbaceous
- ☐ Shrub
- ☐ Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	Max
Cover	0 %	0 %
Height		
Tree Size Class		

☐ Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:

Class E 0%

Late1 Closed

Description

Indicator Species* and Canopy Position

Upper Layer Lifeform

- ☐ Herbaceous
- ☐ Shrub
- ☐ Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	Max
Cover	%	%
Height		
Tree Size Class		

☐ Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:

Disturbances

Non-Fire Disturbances Modeled

- ☑ Insects/Disease
- ☑ Wind/Weather/Stress
- ☐ Native Grazing
- ☐ Competition
- ☑ Other:
- ☐ Other:

Fire Regime Group: 1

I: 0-35 year frequency, low and mixed severity
II: 0-35 year frequency, replacement severity
III: 35-200 year frequency, low and mixed severity
IV: 35-200 year frequency, replacement severity
V: 200+ year frequency, replacement severity

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Historical Fire Size (acres)

Avg:

Min:

Max:

Fire Intervals (FI):

Fire interval is expressed in years for each fire severity class and for all types of fire combined (All Fires). Average FI is the central tendency modeled. Minimum and maximum show the relative range of fire intervals, if known. Probability is the inverse of fire interval in years and is used in reference condition modeling. Percent of all fires is the percent of all fires in that severity class. All values are estimates and not precise.

Sources of Fire Regime Data

- ☐ Literature
- ☐ Local Data
- ☑ Expert Estimate

	Avg FI	Min FI	Max FI	Probability	Percent of All Fires
Replacement	450			0.00222	2
Mixed		0	0		
Surface	7.5			0.13333	98
All Fires	7			0.13557	

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